

SECTION 33 WELL DESTRUCTIONS Standards & Procedures

33-1 GENERAL

33-1.1 SCOPE

These standards are to provide control parameters for the proper destruction of abandoned wells and water related borings, within and under the influence of the City of Fresno. The proper destruction of wells is the first step to reduce and protect our groundwater supply from contaminants being transferred from surface and subsurface sources.

33-2 STATEMENT OF AUTHORITY

33-2.1 LOCAL

It is the purpose and intent of these Standards to describe the requirements for well destructions within the City of Fresno. All well destruction operations and sealing materials used shall conform to the workmanship and quality of material currently used in the industry and as required herein.

33-2.2 STATE

All wells destroyed within the jurisdiction of the City of Fresno shall comply with these standards and shall be in accordance with:

33-2.2.1 State of California, Water Code, Section 13750.5.

33-2.2.2 State of California, Department of Water Resources (DWR), Bulletins 74-81 & 74-90.

33-2.2.3 State of California, Environmental Protection Agency, Department of Toxic Substances and Control (DTSC), Monitoring Well Design and Construction for Hydrogeologic Characterization Manual, Section 5.

33-2.2.3 City of Fresno, Department of Public Utilities, Water Division standards and special instructions when provided.

33-2.3 AUTHORIZED CONTRACTOR

33-2.3.1 License

Only Contractors holding a current State of California C-57 Well Driller license are authorized to destroy wells within the City of Fresno.

33-2.3.2 Types

The licensed Contractor performing the well destruction operation shall provide and coordinate for all materials, equipment, tools, and labor necessary to destroy the following types of wells, see the DWR standards for definitions:

- Municipal Water Supply Wells
- Agriculture Supply Wells
- Industrial Supply Wells
- Domestic Water Supply Wells
- Exploratory Borings, including Direct Push, Related to Water
- Test Wells (TW)
- Environmental Monitoring Wells, (MW)
- Environmental Extraction and Vapor Wells

SECTION 33 WELL DESTRUCTIONS Standards & Procedures

33-2.4. INSPECTION

The well destruction operation will be subject to inspection by the City of Fresno's authorized representative. Overtime inspection fees are charged for all inspections performed on Saturdays, Sundays, City Holidays, and hours worked by the Inspector other than those of the normal City working hours. All inspections fees, including overtime fees, are to be paid and collected in accordance with the existing City of Fresno Master Fee Schedule, prior to signing off and finalizing any "Well Destruction Permit."

33-3 PRE-DESTRUCTION PREPARATION

33-3.1 EQUIPMENT AND DEBRIS REMOVAL

The Contractor shall remove all down-hole pumping equipment and debris from the well, as required per DWR Bulletins 74-81 and 74-90 and as directed by the City of Fresno.

33-3.2 SEDIMENT REMOVAL

Wells with perforated, slotted, or screened casing, shall have all sediment removed from the well prior to the start of well destruction operations. Alternative methods for the removal of sediment are to be submitted to the City of Fresno Water Division for approval.

33-3.3 CASING DESTRUCTION

The existing casing shall be evaluated to determine the appropriate destruction requirements in conformance with DWR Bulletin 74-81, 74-90, DTSC Standards, and these standards. All wells that are a part of a remediation project require a letter of authorization for their destruction from the appropriate lead regulatory agency. Alternative methods for destroying the well casing shall be submitted to the proper agency for approval. The Project Engineer, Project Geologist, or the licensed Contractor shall sign all documentation.

The Destruction Authorization Documentation, along with a completed Well Permit Application for well destruction, shall be submitted to the City of Fresno Water Division for approval, prior to the start of the well destruction operation.

33-3.4 VIDEO RECORD

33-3.4.1 Submission Requirements

The Contractor shall submit a DVD video of the well, using a down-hole video camera, to the Water Division for review. The video should clearly record the entire length of the casing and the entire depth of the well. The City will then review each video and specify the method of well destruction. The following information shall be clearly labeled on the disk and recorded on the video:

- Type of Well
- Address of the Well
- Owner's Name
- Recording Date
- Well Diameter
- Casing Material
- Dynamic Depth Counter

SECTION 33 WELL DESTRUCTIONS Standards & Procedures

33-3.4.2 Clarity Requirements

The video of the well shall be such that the condition of the well casing is clearly visible. If the video does not meet this clarity requirement, or if the pump equipment, oil, debris, sediment, and other objects are found in the bottom of the well, the video will be used to establish the pre-removal condition of the well. A new video of the well shall be required to provide visual evidence that all undesired material was removed from the well prior to the start of the well destruction operation.

33-3.5 SPECIAL REMOVAL AND CASING DESTRUCTION INSPECTION

A special inspection by the Water Division will be required for all removal and casing destruction operations when the video shows that the pump, oil, sediment, or debris is in the well, or when the well casing must be destroyed. Call (559) 621-5324 to schedule the inspection appointment. All fees for the special inspections are to be paid in accordance to the current Master Fee Schedule prior to the start of any work.

33-4 DESTRUCTION APPLICATION REQUIREMENTS

33-4.1 APPLICATION DOCUMENTATION

Prior to the start of any Well Destruction Operation, the contractor shall submit the following information to the City of Fresno Water Division for review and approval:

- A Well Destruction Work Plan complying with State and Local standards
- A copy of the existing Well Completion Report (DWR form 188)
- A plot plan delineating the well's location on Permit Application
- A completed Well Permit Application, signed by the Owner & Contractor
- Payment of the current permit application fee for well destruction
- A DVD video for wells over 2" in diameter
- A volume calculation of the well casing
- A volume calculation of filter pack
- An estimated volume calculation of open bottom
- An estimated volume of required sealing material
- A copy of the "Underground Service Alert" (USA) tag
- A copy of the well destruction Work Plan (MW)
- A copy of State's well destruction approval documentation (MW)

33-4.2 PERMIT APPLICATION

All wells destroyed within the City of Fresno shall require a Well Permit Application for destruction, which must be completed and submitted to the City of Fresno Water Division for review and approval. If the permit is not properly completed it will be returned to the applicant for corrections. Each permit application shall be accompanied with Contractor's proof of C-57 license.

33-4.3 VOLUME CALCULATION

33-4.3.1 Well and Filter Volume

The contractor shall submit a calculation for the estimated volume of the well, including filter pack, and as best practical the estimated volumes of known cavities.

SECTION 33 WELL DESTRUCTIONS Standards & Procedures

33-4.4 UNDERGROUND SERVICE ALERT (USA)

An Underground Service Alert (USA) is required prior to the start of the well destruction operations. The City of Fresno falls under the umbrella of USA-North. Call 811 to order a USA for the property where the well is to be destroyed.

33-5 DESTRUCTION OPERATIONS

33-5.1 EXCAVATION REQUIREMENT

DWR Bulletin 74-81, 74-90 requires that the well casing be removed to a depth of five feet within urban areas.

33-5.1.1 Well Accessibility

The two typical scenarios of well placement found in the City of Fresno, which will determine the method of destruction, are described below:

33-5.1.1.1 Open Access

Wells, with clear and open access will require excavation and the removal of not less than five linear feet of the well casing below the surrounding surface, or

33-5.1.1.2 Restrictive Access

Wells located within a driveway, a patio, or a building, may not require excavation. The well casing shall be cut flush to the existing surface surrounding the well, or as deep as practical. The well shall then be filled to the top of the casing with an approved sealing material, in accordance with these standards.

33-5.1.2 Alternative Methods

The Project Engineer, Project Geologist, or Contractor may submit a signed plan for an alternative method to remove the top five feet of casing to the City of Fresno Water Division for Approval. No work shall proceed until the plan is approved by the Water Division.

33-5.2 PLACEMENT OF SEALING MATERIAL

33-5.2.1 Tremie Pipe

All wells with a completion depth of 30 feet or greater, and have a casing of 4 inches in diameter or less shall require the use of tremie pipe for placing sealing material into the bottom of the well.

All wells found to have more than ten feet of water shall require the use of a tremie pipe for placing the sealing material into the bottom of the well.

The tremie pipe shall be removed from the well in accordance DWR Bulletin 74-81 and 74-90. All tremie pipe shall be made of suitable ridge materials.

33-5.2.2 Failed Sealing Operation

Prior to the placement of any sealing material into the well, the well shall be sounded to verify that there has been no significant change in the well depth. If the total volume of the sealing material placed in the well is less than the calculated volume of the well, including the estimated volume of voids in the filter pack, the well destruction operation will be considered to have failed and corrective action shall be required to comply with state

SECTION 33 WELL DESTRUCTIONS Standards & Procedures

codes, or as otherwise directed.

33-5.3 SEALING MATERIALS

33-5.3.1 Submittals

Prior to commencing destruction operations, the Contractor shall submit to the Water Division either, a plant mix design, or calibration info with batch mix specification, for review and approval.

The Contractor shall provide the Water Division all weight tickets for sealing materials delivered for the well destruction.

33-5.3.2 Sealing Material Design Mixtures

The sealing material (cement mixtures) to be used shall conform to one of the following specifications as defined in the California Water Well Standards DWR Bulletin 74-81 & 74-90.

33-5.3.2.1 Sand cement:

One 94 lb sack of type I/II Portland cement and 188 lbs of sand to 6 gallons of clean water.

33-5.3.2.2 Neat cement:

One 94 lbs sack of type I/II Portland cement to 6 gallons of clean water.

33-5.3.2.3 Cement bentonite:

One 94 lb sack of type I/II Portland cement and 1.88 lbs bentonite to 8 gallons of water clean.

33-5.4 PRESSURE APPLICATION TO SEALING MATERIAL

33-5.4.1 Opened Bottom Well

Where well casings are found to have cracks, separations, or holes, a sand cement grout shall be placed in the bottom of the well and not more than 5 feet up from the bottom of the casing. Neat cement shall then be placed on top of the Sand cement grout and pressurized in accordance with the below requirement.

33-5.4.2 Screened Well

Wells having louvers, perforations, slots, penetrations, cracks, separations, or holes in the casing walls shall use either sealing mixture 33-5.3.2.2 , 33-5.3.2.3, or in combination with 33-5.3.2.1 as specified in these standards.

33-5.4.3 Pressurization of Well

After the placement of sealing material into well, by way of a 2" tremie pipe, 50 PSI of pressure shall be applied & maintained to the top of the well, for not less than 15 minutes. The pressure gauge, used to verify that 50 PSI has been attained, shall extend not less than 3 feet above the top of the casing or finished grade. Alternative pressurization application systems shall be submitted for approval not less than 4 days before the start of the destruction operation, to the City of Fresno Water Division for review and approval.

SECTION 33 WELL DESTRUCTIONS Standards & Procedures

33-5.5 INSPECTION SCHEDULING

The Contractor shall call (559) 621-5324 to schedule a well destruction inspection with the City of Fresno Water Division - not less than 48 hours prior to the destruction of any well. Inspections are scheduled by a first-in and first-out system. Some inspections may be scheduled beyond the 48-hour time period. Inspections requested to take place after normal working hours are available at the current overtime rate specified in the City of Fresno Master Fee Schedule.

33-6 TECHNICAL PROBLEMS

The City of Fresno Water Division's authorized representatives shall evaluate well destructions that pose technical problems outside the scope of these standards. Each well shall be destroyed on a case-by-case basis to ensure compliance to state and local standards.

33-7 FINALIZING PERMIT

A well permit is finalized, when the City of Fresno receives a copy of the completed State of California, Department of Water Resources; Well Completion Report (DWR 188 rev.), signed by the Contractor holding the C-57 license and the fulfillment of these guidelines. The Contractor shall deliver to the City of Fresno a completed Well Completion report within ten days of completing the well destruction operations. The Permit will not be finalized until a properly completed DWR Report is received by the City of Fresno Water Division.

33-8 STANDARD REVISIONS AND MODIFICATIONS

The City of Fresno from time to time may modify these standards to meet conditions and regulatory requirements as they change.